Strategy to get Water to Great Salt Lake

- using Precipitation evaporative loss-ver. 4

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[Solar pond Salt Chemicals expertise, metal and chemical production [Mg, Li, Ti, B, Rare Metals], energy technologies]
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& Several Associates interested in Getting water to GSL

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GSL 2022 July

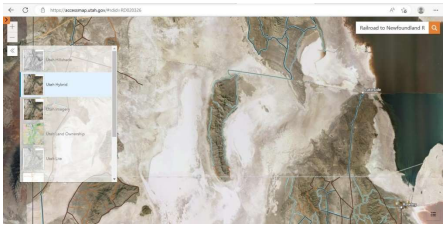
- *https://esa.int/ESA_Multimedia/Images/2022/08/Great_Salt_Lake_from_1985_to_2022*

Water & Salt Bottom 1

GSL July 2022, water surface=564000 acre [4190'amsl] + mudflats area= 810000 acres [to 4207'amsl].
Phase 1:
*Get 100,000 to 200,000 acre feet to the lake water body. Reroute evaporative waste streams of water in uneven mudflats by terrace furrowing. In discussion withDNR-State of Utah .
* Dwindle mudflat area by Ecofriendly farming techniques
*Consolidate surface dust into larger particles to suppress dust pollution.
*Amenable for volunteer furrowing and grading
*mudflat - snow ploughing winter precipitation into water

July 2022 EU satellite photo showed stored salt water in all the salt producers around GSL .
Wendover Potash Plant has no river influx, uses only ← precipitation .

Build Newfoundland Salt flat Reservoir



Phase 2:1987-89 West desert Pumping made salt flats of 390000 to 460000 acre salt flats. Build a reservoir collecting Precipitation into reservoirs and rechannel to GSL.. This can provide 150000 to 250000 acre feet [af] of water to lake surface. This has been providing gravity drainage of about 54000 af. This can contribute to power generation during drainage season.

Rivulets from Box Elder & Tooele Counties

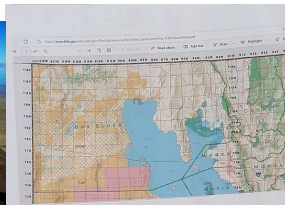
- **Phase 3A**

Tooele County –

Collected snow run offs in the mudflats south of I-80 – can be rerouted back to the GSL bed, by opening up culverts, and engineered railroad bed . These used to go into GSL pre-1983, before railroad bed and I-80 were raised.

- **Phase 3B**

Box Elder County – below Rail road to North Arm[west of promontary]. ~400000 acres, make rivulets to direct pre-evaporation season precipitation to lake.



Water in Newfoundland salt flats

Above 'water water everywhere [May 6, 2017.
← Aug 20, 2009
← <-- Map to get from North side.
Photos from website SummitPost.org

To Hogup Pump area 03142023

East Pond with water Desert Peak-Newfoundland Mtn. Saltflats March 14 2023

Hogup West Desert Pump Discharge canal filled up 031423, ~530af brine - 4.1 mile long with dike at west end

GSL water budget table

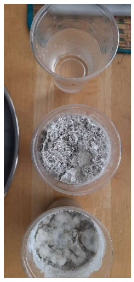
Period →		1940-1977*	2000-2022
Parameter		annual mean	
Surface Inflows	acre ft	1755000	
Groundwater inflows	acre ft	206000	
Precipitation inflows	acre ft	685000	
Industry net outflows	acre ft	not given	
Evaporation Outlfows	acre ft	2490000	
Transpiration outflows	acre ft	151000	
Precipitation	inches	10.4	
evaporation	ft	3.14	
Lake elevation	amsl ft	4195.9	

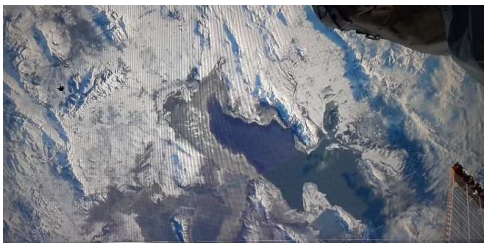
* excerpted fromB.Glenne, D.W.Eckhoff & J.E.Paschal Proc. of Great Salt Lake Levels', Desertic Terminal Lakes, Ed. David Greer, Ogden, UT May 1977, p 199-210

More Info

This bottle has releasable puddles of sodium sulfate containing brine, with frozen soil near surface, when night time freeze starts to slow down, and daytime temperatures get to ~50 °F the liquor solidifies, and effloresce creating crusts. Recommended, capturing this brine into the lake by simple farming furrows during Dec.- early March. This Phase I can release about 160000acre feet into the lake instead of becoming evaporative loss and crust formation. See desktop drying at room temperature

The oolitic sand bed of GSL between 4190 ft amsl lake level and 4207 ft level had lot of puddles in February 2023, they are turning into effervescent crust which can become airborne as temperatures go up.





West desert pumping salt flat water – shown by ISS flight on March 02, 2023. Water in both sides of Newfoundland mountains seen.

More water to GSL-Now

- Present surface area at 4190 ~ 574000 acres
- The 3 phase approach can provide 800000 acre feet additional water each year in the next few years with crust management and playa hydrology using evaporative loss precipitation and allow buildup.
- This can be done by making reservoirs and rivulets in the additional 800000 acres [upto elev. 4207 ft] of the Great Salt Lake, in larger areas of northwest Boxelder county and west desert areas by engineered changesTooele county mudflat waters south of GSL, to go back to GSL
- 2 options – in the GSL oolitic sand bed above water line- Create terrace furrows , and where possible implement snow ploughing during winter.
- Create pumped salt pans in GSL islands – similar to some terraced salt pans which has been in service in Peru for over 500 years in the island mountains inside GSL.
- Lake influx water salinized by pumping near source will reduce considerably more evaporative loss

Bio of Neale Neelameggham

- Neale R. Neelameggham IND LLC, is involved in international technology and management licensing for metals and chemicals, thiometallurgy, energy technologies, Agricoal, lithium-ion battery, energy efficient low cost OrangeH2, Netzero sooner with Maroon gas and Pink hydrogen, rare earth oxides, etc.
- Presently working on Sustainable Lakes and getting Water to the Great Salt Lake **A Director of Akash Ganga non-profit since 2000 for RainWaterHarvesting.**
- He has more than 38 years of expertise in magnesium production and was involved in the process development of its startup company NL Magnesium, UT until 2011, during which he was instrumental in process development from the solar ponds to magnesium metal foundry. His expertise includes competitive magnesium processes worldwide and related trade cases. . He has traveled over a million miles in I-80 south of GSL during this time. ***Participated in West Desert Pumping as Amax Magnesium Representative – for its Knolls solar ponds.***
- In 2016, Dr. Neelameggham and Brian Davis authored the ICE-JNME award-winning paper "Twenty-First Century Global Anthropogenic Warming Convective Model." He is working on Agricoal® to greening arid soils, and at present energy efficient Orange hydrogen, and methane abatement. He authored the ebook The Return of Manmade CO2 to Earth: Ecochemistry.
- Dr. Neelameggham holds 16 patents and applications and has published several technical papers. He has served in the Magnesium Committee of the TMS Light Metals Division (LMD) since its inception in 2000, chaired in 2005, and since 2007 has been a permanent advisor for the Magnesium Technology Symposium. Dr. Neelameggham was the Inaugural Chair, when in 2008, LMD and the TMS Extraction and Processing Division (EPD) created the Energy Committee and has been a Co-Editor of the Energy Technology Symposium through the present. He received the LMD Distinguished Service Award in 2010. As Chair of the Hydrometallurgy and Electrometallurgy Committee, he initiated the Rare Metal Technology Symposium in 2014 and has been a co-organizer to the present. He organized the 2018 TMS Symposium on Stored Renewable Energy in Coal. He is the founding chair for the ad-hoc Light elements adhoc Committee of TMS in 2022-23.